

CLAIMS

What is claimed is:

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1. A tubing system for use in a subterranean environment, comprising:

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an upper tubing section having an upper power cable segment therein;

a lower tubing section having a lower power cable segment therein; and

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an intermediate tubing section having an electrical connector that is axially expandable therein, wherein the upper and the lower tubing sections are coupled to generally opposite ends of the intermediate tubing section and the electrical connector is electrically coupled to the upper and lower power cable.

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2. The tubing system as recited in claim 1, wherein the upper and lower tubing sections comprise coiled tubing.

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3. The tubing system as recited in claim 2, wherein the upper tubing section is coupled to the intermediate tubing section by a dimple-on connector.

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4. The tubing system as recited in claim 3, wherein the lower tubing section is coupled to the intermediate tubing section by a dimple-on connector.

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5. The tubing system as recited in claim 2, wherein the electrical connector comprises a sliding contact to permit axial elongation and contraction.

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6. The tubing system as recited in claim 5, wherein the sliding contact comprises a plurality of extensions slidably received in a plurality of corresponding receptacles.

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7. The tubing system as recited in claim 2, wherein the intermediate tubing section and electrical connector may be spooled onto a workover reel.

8. A tubing splice system, comprising:

an intermediate tubing section coupled to a pair
of adjacent tubing sections by a pair of
mechanical connectors each having an outside
diameter that does not substantially exceed
5 the diameter of each adjacent tubing section;
and

a power cable extending through the pair of tubing
sections, the power cable being spliced by an
10 electrical connector disposed within the
intermediate tubing section between the pair
of mechanical connectors.

9. The tubing splice system as recited in claim 8,
15 wherein the pair of adjacent tubing sections comprise coiled
tubing.

10. The tubing splice system as recited in claim 8,
wherein the pair of adjacent tubing sections and the
20 intermediate tubing section have common diameters.

11. The tubing splice system as recited in claim 8,
wherein the electrical connector is expandable within the
intermediate tubing section.

12. The tubing splice system as recited in claim 9, wherein each mechanical connector of the pair of mechanical connectors has a diameter no greater than the diameter of the pair of adjacent tubing sections.

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13. The tubing splice system as recited in claim 12, wherein each mechanical connector comprises a dimple-on connector.

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14. The tubing splice system as recited in claim 8, wherein the electrical connector comprises a sliding contact to permit axial elongation and contraction.

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15. The tubing splice system as recited in claim 14, further comprising an electric submersible pumping system coupled to the power cable and to one of the pair of tubing sections.

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16. An electrical connector for connecting segments of power cable, comprising:

an outer housing sized to fit within a segment of coiled tubing;

a conductive receptacle disposed within the outer housing, the conductive receptacle being electrically coupled to a first power cable segment; and

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a conductive extension sized for slidable receipt in the conductive receptacle, the conductive extension being coupled to a second power cable segment.

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17. The electrical connector as recited in claim 16, wherein the conductive receptacle comprises three conductive receptacles and the conductive extension comprises three conductive extensions.

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18. The electrical connector as recited in claim 17, further comprising a coiled tubing segment positioned around the outer housing.

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19. A method for splicing tubing having an internal power cable for use in providing power to an electric submersible pumping system, comprising:

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coupling an intermediate tubing section between a pair of tubing sections of equal diameter to

the intermediate tubing section via a pair of
mechanical connectors; and

5 splicing an internal power cable within the
intermediate tubing section.

20. The method as recited in claim 19, wherein
splicing comprises connecting an upper and a lower segment
of the power cable to an electrical connector disposed
10 between the pair of mechanical connectors.

21. The method as recited in claim 20, further
comprising forming the electrical connector as an extensible
electrical connector.
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22. The method as recited in claim 21, wherein forming
comprises placing a conductive rod in slidable engagement
with a corresponding receptacle.

20 23. The method as recited in claim 21, wherein forming
comprises placing three conductive rods in slidable
engagement with three corresponding receptacles.

24. The method as recited in claim 23, wherein
splicing comprises forming an electrical splice above and
below the electrical connector.

5 25. The method as recited in claim 20, further
comprising connecting an electric submersible pumping system
to one of the pair of tubing sections.

10 26. The method as recited in claim 25, further
comprising powering the electric submersible pumping system
via the internal power cable.

15 27. The method as recited in claim 20, wherein
coupling comprises utilizing dimple-on connectors as the
pair of mechanical connectors.

20 28. The method as recited in claim 26, wherein
coupling comprises utilizing dimple-on connectors as the
pair of mechanical connectors.

29. A system for splicing tubing having an internal
power cable for use in providing power to an electric
submersible pumping system, comprising:

means for coupling an intermediate coiled tubing
section between a pair of coiled tubing
sections via a pair of mechanical connectors;
and

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means for splicing an internal power cable within
the intermediate coiled tubing section.

30. The system as recited in claim 29, wherein the
10 means for splicing comprises an electrical connector and a
pair of electrical splices disposed between the pair of
mechanical connectors.